

Applicant: Pauli Koutonen et al.
Application No.: 10/517,893
Response to Office action dated Aug. 10, 2007
Response filed November 30, 2007

Remarks

Claims 8–23 remain pending in the application. In the Office action dated Aug. 10, 2007, claims 8-14 and 16-19 were rejected under 35 U.S.C. 103 over the disclosure of JP 9315632A. Claim 15 was rejected under 35 U.S.C 103 over JP 9315632 in view of Griffin.

The claims have been amended to be more clearly directed to methods involving a paper or board web. Support for this amendment is found in the title of the invention, and the specification has been amended to incorporate this language from the title.

Claims 8 and 16 have been further amended to be directed to methods in which the wrap angle of the web roll is regulated according to a wrap angle function with respect to the diameter of the web roll, and this function is adjusted until a selected roll hardness distribution is achieved. These amendments are supported by the specification, which provides:

In practice, this wrap angle as a function of the roll diameter is determined experimentally, i.e. a certain wrap angle function is set in the control system of the slitter-winder and the hardness distribution of rolls is measured. The wrap angle function is changed until the desired roll structure is achieved. This hardness regulation of a set can also be carried out for a particular station or roll, if the wrap angle of the component webs can be controlled.

Par. [0018]. Dependent claims 9, 10, 13, 14, 17 and 18 have been amended in accord with the changes to the independent claim from which they depend.

New claims 20–23 have been added. Claim 20 is directed to a method of “controlling the structure of the web roll being formed by adjusting the wrap angle of the web as it passes through the nip *during the course of winding the web roll* to obtain a desired roll hardness distribution.” Support for the new claims is found in the specification:

In accordance with the invention, the structure of the roll 15 being formed is controlled by changing the magnitude of the wrap angle by changing the location of the guide rolls 11, 12 with respect to the winding drum 13 such that the wrap angle changes.

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Par. [0027]. The new dependent claims 22 and 23 are based on original claims 6 and 7.

The examiner's interpretation of the JP '632 is as follows:

1. The reference teaches wrapping a web into a roll;
2. As the roll is wrapped it may or may not develop air pockets or wrinkles;
3. The presence or absence of pockets or wrinkles affects the hardness distribution of the roll.

Thus by observing the presence or absence of air pockets or wrinkles, the examiner contends, JP '632 effectively "measures" the roll hardness distribution.

JP '632 is directed to a method of winding a film on a core, in which the film travels over a roller with a lap angle of 5 to 30 degrees (JP Claim 1). The specification discloses that tests were conducted comparing a lap angle within the claimed range at various winding speeds with lap angles of 90 and 180 degrees. The results showed that at a value within the claimed range the wound roll was "OK", that is, wrinkles were avoided at all tested speeds. For the prior art lap angles (90 and 180), wrinkles were detected at some winding speeds (JP paragraph 14).

It should be noted that JP '632 does not suggest adjusting the lap angle in response to any of these data. Rather the test data show the beneficial performance of the claimed limited range.

Claims 8–19 require

- 1) winding a paper or board roll through a winding nip with a wrap angle function,
- 2) measuring the hardness distribution of the paper or board web roll, and
- 3) changing the wrap angle function in response to the measurement until a selected roll hardness distribution is achieved.

JP '632 discloses winding a plastic film roll, but does not disclose wrapping a paper or board web. JP '632 furthermore does not disclose steps 2) or 3).

First, an assessment of whether a roll is "OK" or "No Good" in terms of wrinkling, does not constitute a measurement of hardness *distribution*. The examiner observes that a

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wrinkled roll will have a different hardness than a non-wrinkled roll. This type of either/or observation does not constitute a measurement of roll hardness distribution, not only because there is no range of values (other than OK or No Good) assigned to roll hardness distribution that could be compared to some desired target (other than OK) but because JP '632 does not measure the *distribution* of hardness with respect to the diameter of the roll, i.e., the hardness as a function of the roll diameter.

Second, JP '632 does not disclose changing the wrap angle function until a desired roll hardness distribution is achieved. The JP '632 invention involves a wrap angle of 5 to 30 degrees. It does not suggest changing the wrap angle function in response to the observations of the experiments, it merely produces the test results as evidence of the improved performance of the inventive range. It does not suggest the achievement of a desired measured hardness distribution.

Moreover, with respect to claims 20, 21, JP '632 does not disclose controlling the structure of the web roll being formed by adjusting the wrap angle of the web during winding. JP '632 discloses at paragraph 0008 "At this time, the inventive method adjusts position of the guide roller (3), and sets the lap angle (q_1) of the film (4) relative to the contact pressure roller (3) so that it becomes 5 to 30° and preferably 10 to 20°." (From English translation of JP '632 supplied by applicant in connection with the response of Jun. 13, 2007.) In both the "Embodiment I" of the invention, and the prior art example, the lap angle is given as a single value for the winding. There is no disclosure of varying the wrap angle during the winding of the roll. Thus the reference does not show the invention of claims 20–23 which requires adjusting the wrap angle as the roll is wound.

JP '632 furthermore does not disclose the inventions of claims 13 and 14, because it does not disclose making the wrap angle larger to increase roll hardness distribution, nor making the wrap angle smaller to provide a softer web roll.

Claim 15 was rejected over JP '632 in view of Griffin. Claim 15 is directed to measuring the wound-on-tension in a slit during running, and controlling the changing of the wrap angle by a closed control loop, in response to the measured wound-on-tension. JP

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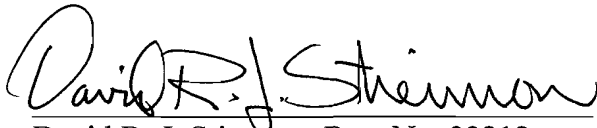
'632 shows that its claimed narrow range of wrap angle is advantageous for wrapping thin PET films to avoid wrinkling, but it does not disclose changing the wrap angle in response to any measurement, let alone any measurement of hardness. Griffin does show changing the wrap angle of a metal strip about a shape sensing roll 19 along the path of the strip, but in the Griffin invention there is no winding nip defined between the metal strip and a winding drum, hence Griffin does not disclose any adjustment of the claimed parameter, and hence is not an applicable reference.

Applicant believes that no new matter has been added by this amendment.

Applicant submits that the claims, as amended, are in condition for allowance.

Favorable action thereon is respectfully solicited.

Respectfully submitted,



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